



This Common Artificial Sweetener Can Break Down DNA, Scientists Warn

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(Tetra Images/Getty Images)

The artificial sweetener sucralose (marketed as Splenda) is widely used and found in products like diet soda and chewing gum. According to a [new study](#), it's also capable of damaging the DNA material inside our cells.

As DNA holds the genetic code controlling how our bodies grow and are maintained, that's a serious problem that could lead to multiple health issues.

So significant are the researchers' concerns, they are now calling for food standard agencies to review the safety and regulatory status of the sugar substitute.

The technical term for something that breaks DNA like this is genotoxic, and the study looked specifically at sucralose-6-acetate: this chemical compound is produced when sucralose is ingested and metabolized in the body, as reported [in a 2018 study](#) in rats.

"To put this in context, the European Food Safety Authority has a threshold of toxicological concern for all genotoxic substances of 0.15 micrograms per person per day," [says](#) biomedical engineer Susan Schiffman from North Carolina State University.

"Our work suggests that the trace amounts of sucralose-6-acetate in a single, daily sucralose-sweetened drink exceed that threshold. And that's not even accounting for the amount of sucralose-6-acetate produced as metabolites after people consume

sucralose."

In other words, sucralose-6-acetate is already present in these drinks before they are ingested, but even more of it is produced in our stomachs. Sucralose is actually made from a tweaked version of sucralose-6-acetate, which is synthesized from [sucrose sugar](#).

In the study, the researchers ran a series of lab tests on human blood cells and gut wall tissue to see the reaction to both sucralose and the sucralose-6-acetate compound. Tests were also done on the genetic activity of the gut cells, all using standardized analysis procedures for detecting DNA damage.

The tests confirmed mechanisms that were genotoxic and clastogenic (breaking strands of DNA), as well as showing increases in the expression of genes that are linked to inflammation, oxidative stress, and [cancer](#). What's more, the gut lining was also damaged.

"[W]e found that both chemicals [sucrose and sucralose-6-acetate] cause 'leaky gut'," [says Schiffman](#).

"Basically, they make the wall of the gut more permeable. The chemicals damage the 'tight junctions', or interfaces, where cells in the gut wall connect to each other."

A leaky gut means that the [partially digested food and toxins](#) can seep into the bloodstream. The condition can be brought on in [numerous ways](#), and can have subsequent impacts in many different parts of the body.

The researchers behind the new study warn that people should now stop taking sucralose and consuming anything that contains it. Previously, regulatory approval was given to the sweetener based on [research showing](#) that it passed through the body unchanged – findings that are now being contradicted by more recent studies.

That regulatory approval may now have to be reviewed. Further research could look more closely at the potentially dangerous health impacts of sucralose-6-acetate exposure, the researchers suggest.

"This work raises a host of concerns about the potential health effects associated with sucralose and its metabolites," [says Schiffman](#).

"It's time to revisit the safety and regulatory status of sucralose, because the evidence is mounting that it carries significant risks."

The research has been published in the *[Journal of Toxicology and Environmental Health, Part B](#)*.